POST FALLS SOUTH PARK (PWSNO 1280148)
SOURCE WATER ASSESSMENT REPORT

February 5, 2002

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR POST FALLS SOUTH PARK

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing risk assessments for public drinking water systems in Idaho based on a land use inventory in the well recharge zone, sensitivity factors associated with how the well was constructed, and aquifer characteristics.

DEQ used a refined computer model approved by the EPA to map the recharge zone for Post Falls South Park well. The time of travel (TOT) for all water reaching the well is estimated to be a year or less. The model for the Post Falls South Park well used data assimilated from a variety of sources including the report *Investigation of Nitrate in Ground Water in a Small Aquifer South of Post Falls, Idaho* prepared for DEQ in 1999 by John Riley of Pyrite Hydrochem.

This report, *Source Water Assessment for Post Falls South Park* describes the public drinking water source, land use and potential contaminant sites inside the recharge zone and the associated susceptibility (risk) to contamination. This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should <u>not</u> be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Potential Contaminant Inventory. The Post Falls South Park well is regulated as a transient water system serving three connections in a city park south of the Spokane River at Post Falls, Idaho. Water is supplied by 6-inch cased well drawing from the Rathdrum Prairie Aquifer. The estimated capacity of the well is 20 GPM. Post Falls South Park well is within 200 feet of two other wells operated by small privately owned water systems.

The recharge zone for the well encompasses 19.5 acres. One leg of the recharge zone stretches southwest from the well for about 1000 feet to a bedrock boundary. The other leg trends eastward to the edge of the aquifer defined by the Spokane River. Water levels in local wells show a hydraulic divide (just south of the greenhouses shown on the map on page 5) that accounts for the deeply curved southern boundary of the delineation.

Land use inside the recharge zone is primarily residential with homes on individual septic systems. Potential contaminants associated with septic systems are bacteria, viruses and nitrates, salts and dissolved solids. Improperly disposed of household chemicals can also enter the ground water through septic systems. Roads near the well and crossing the delineation boundaries appear to carry low volume local traffic and were not counted as potential contaminant sources in the susceptibility analysis. Part of the greenhouse property, including a dug well that had nitrate levels in the range of 14.1 to 51.6 mg/l when tested in the summer and fall of 1997, lies inside the delineation boundaries and contributed to the high nitrate levels seen in the neighboring wells.

Table 1. Post Falls South Park Potential Contaminant Inventory

Map ID	TOT Zone	Source Description	Potential Contaminants	Source of Information
1	0-3	High Density Septic System	IOC Microbial	Enhanced Inventory
2	0-3	High Density Septic System	IOC, Microbial	Enhanced Inventory
3	0-3	Dug Well	IOC	Enhanced Inventory

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
USGS= United States Geological Survey, PWS = Public Water System, TOT= Time of Travel

Water Quality History. Post Falls South Park is required to monitor quarterly for bacterial contamination. Total coliform bacteria of unknown origin were present in samples drawn in July and August 1999. Follow up tests were negative. Annual tests for nitrate have shown concentrations below detection limits and up to 1.2 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Well Construction. The Post Falls South Park well was drilled in 1975. The 6-inch steel casing extends from 24 inches above ground to a depth of 58 feet, and is perforated between 50 and 57 feet. A puddling clay surface seal is 20 feet deep. The static water level is 32 feet below the surface. Maintenance of the well seal is in compliance with *Idaho Rules for Public Drinking Water Systems.*

Hydrologic Characteristics. The hydrologic sensitivity score for the Post Falls South Park well was 6 points out 6 points possible. The score reflects natural geologic conditions at the well site and in the recharge zone. Soils in the well recharge zone as a whole are classed as moderately well drained to well drained. Poorly drained to moderately well drained soils are deemed more protective of ground water than soils that drain faster. The depth to ground water is only 32 feet, which provides little opportunity for potential contaminant attenuation through adsorption and other mechanisms. The soil above the water is composed of sand and gravel with no clay layer to retard the vertical transport of contaminants.

Susceptibility to Contamination. A susceptibility analysis of the Post Falls South Park ranked the well moderately susceptible to all classes of regulated contaminants. Natural risk factors associated with the geology of the Rathdrum Prairie Aquifer added the most points to the final susceptibility scores. The susceptibility analysis worksheet for your well on page 6 shows how your well was scored. Formulas used to compute the final susceptibility scores are shown on the bottom of the worksheet.

Drinking Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Since nitrate contamination is the likeliest threat to the Post Falls South Park well, measures to reduce nitrate loading in the well recharge zone should be the first a priority for ground water protection. Based on studies of ground water flow direction and water quality chemistry in several wells, the Pyrite Hydrochem report cited above concluded that septic systems are significant contributors of the nitrates reaching the nearby wells. Household use of fertilizer for lawns and gardens can also contribute to the problem.

Public education is probably the best counter measure. In cooperation with neighboring water systems, Post Falls should consider sponsoring ground water protection workshops for residents in the recharge zone. For instance, a workshop on septic tank operation and maintenance should address topics like:

- monitoring the drainfield for signs of failure such as odors or areas of lush vegetation;
- annual inspections and periodic pump outs;
- preventing hydraulic overloading through water conservation;
- proper disposal of household chemicals and pharmaceuticals that can interfere with normal operation of the tank;
- Preventing soil compaction and other damage to the drainfield.

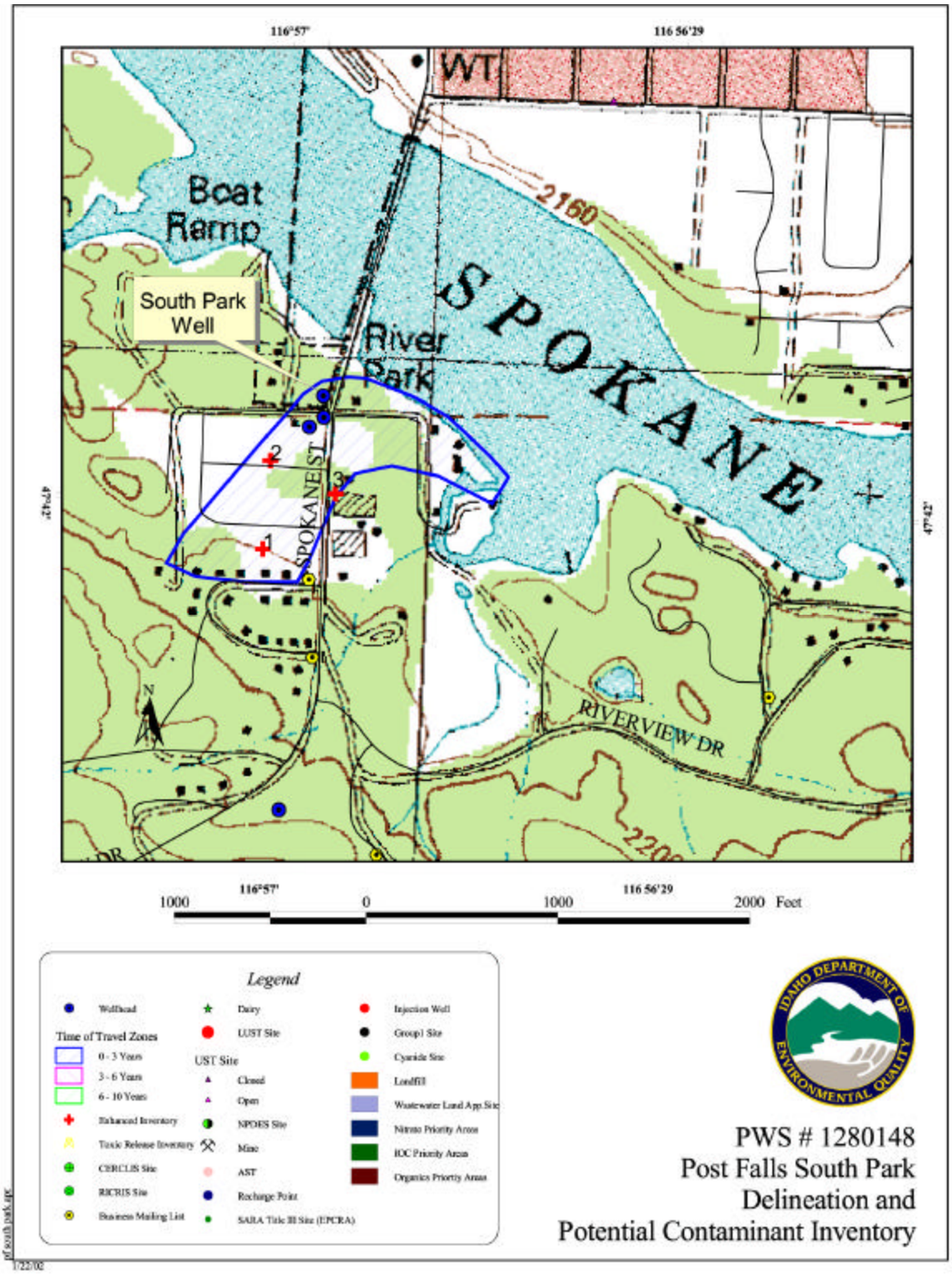
The University of Idaho Cooperative Extension Service could be a resource for pollution prevention ideas related to home gardens and landscape. Some topics to consider are landscaping with native plants; proper household use of fertilizer and pesticides; timing fertilizer applications to avoid periods when ground water nitrate concentrations are likely to rise.

The greenhouse operation partially within the zone of capture for the Post Falls South Park well is in a consent agreement with DEQ to minimize nitrate contamination of the ground water. When the owner was informed of the discovery of elevated nitrate concentrations in the ground water, direct discharge of wastewater to a drywell was stopped immediately. Hydroponic water is now run through sand filters and minor amounts of spent water from the filtration system are applied to bedded plants. The owner is still gathering data on ways to further reduce nitrate losses to the ground water. This agricultural operation will probably continue to have some impact on the ground water, but not at levels that create a significant deterioration of quality.

The Internet has numerous sites devoted to ground water protection. The document *Protecting Drinking Water Sources in Idaho,* available on the DEQ website, shows how to develop a state-certified plan. Assistance in developing drinking water protection strategies is also available from the Coeur d'Alene Regional DEQ office (208) 769-1422.

DEQ Website:

http://www.deq.state.id.us



PWS # 1280148
Post Falls South Park
Delineation and
Potential Contaminant Inventory

pf_south_park.apr
7/22/02

Ground Water Susceptibility

Public Water System Name : **POST FALLS SOUTH PARK** Source: **WELL #1**

Public Water System Number : **1280148** 1/22/02 1:41:12 PM

1. System Construction		SCORE			
Drill Date	5/27/75				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		**3**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		**6**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A		Score	Score	Score	Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		**2**	**2**	**2**	**2**
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	0	0	2
(Score = # Sources X 2) 8 Points Maximum		4	0	0	4
Sources of Class II or III leacheable contaminants or Microbials	YES	2	0	0	
4 Points Maximum		2	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		**6**	**0**	**0**	**4**
Cumulative Potential Contaminant / Land Use Score		**8**	**2**	**2**	**6**
4. Final Susceptibility Source Score		**11**	**10**	**10**	**11**
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

> 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.